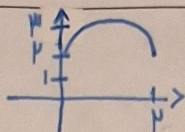
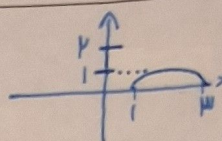


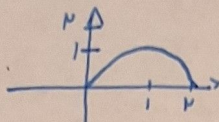
الف) $f(x) + 1$



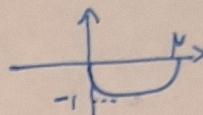
ب) $f(x-1)$



ج) $1/f(x)$



د) $-f(x)$



الف) $x^2 - 2x + 4 > 0 \rightarrow (x-1)(x-3) > 0 \rightarrow \frac{1}{1} - \frac{3}{3} \rightarrow D_f = (-\infty, 1) \cup (3, +\infty)$

ب) $x^2 - 4x + 4 < 0 \rightarrow (x-1)(x-4) < 0 \rightarrow \frac{1}{1} - \frac{4}{4} \rightarrow D_f = (1, 4)$

ج) $x^2 + 4x + 4 > 0 \rightarrow (x+1)(x+4) > 0 \rightarrow \frac{-1}{-1} - \frac{-4}{-4} \rightarrow D_f = (-\infty, -1) \cup [-4, +\infty)$

د) $x^2 - 7x + 4 < 0 \rightarrow (x-1)(x-4) < 0 \rightarrow \frac{1}{1} - \frac{4}{4} \rightarrow D_f = [1, 4]$

الف) $\frac{x^2 - 13x + 1}{x-2} < 0 \rightarrow \frac{(x-1)(x-12)}{x-2} < 0 \rightarrow \frac{1}{1} - \frac{12}{2} - \frac{2}{2} \rightarrow D_f = (-\infty, 1) \cup (2, 12)$

ب) $\frac{x^2 - 1}{x^2 - 4x + 4} > 0 \rightarrow \frac{(x+1)(x-1)}{(x-1)(x-2)} > 0 \rightarrow \frac{-1}{-1} - \frac{1}{2} - \frac{2}{2} \rightarrow$

$D_f = (-\infty, -1] \cup (2, +\infty)$

الف) $y = \sqrt{\frac{x^2 - 1}{x^2 - 2x}} \rightarrow \sqrt{\frac{(x-1)(x+1)}{x(x-2)}} \rightarrow \sqrt{\frac{(x-1)(x+1)(x-1)}{x(x+1)(x-2)}} \rightarrow \Delta < 0$
 $\frac{-1}{-1} - \frac{0}{0} - \frac{2}{2} \rightarrow D_f = (-\infty, -1) \cup (0, 1) \cup (2, +\infty)$

ب) $y = \sqrt{\frac{x^2 - 14}{x^2 - 2x + 4}} \rightarrow \sqrt{\frac{(x-4)(x+4)}{(x-1)(x-2)}} \rightarrow \frac{-4}{-4} - \frac{1}{1} - \frac{2}{2} \rightarrow$
 $\rightarrow D_f = (-\infty, -4] \cup (1, 4) \cup (2, +\infty)$

الف) $y = \sqrt{4 - \sqrt{4 - x}} \rightarrow 4 - x > 0 \rightarrow x < 4$
 $4 - \sqrt{4 - x} > 0 \rightarrow \sqrt{4 - x} < 4 \rightarrow 4 - x < 16 \rightarrow -12 < x$
 $\rightarrow D_f = [-12, 4]$

ب) $y = \sqrt{13 - \sqrt{x - 4}} \rightarrow x - 4 > 0 \rightarrow x > 4$
 $13 - \sqrt{x - 4} > 0 \rightarrow \sqrt{x - 4} < 13 \rightarrow x - 4 < 169 \rightarrow x < 173$
 $\rightarrow D_f = [4, 173]$

$$y = \sqrt{k - px^p} \rightarrow k - px^p \geq 0 \rightarrow px^p \leq k \rightarrow x^p \leq \frac{k}{p} \rightarrow -\sqrt[p]{\frac{k}{p}} \leq x \leq \sqrt[p]{\frac{k}{p}} \\ \rightarrow D_f = [-\sqrt[p]{\frac{k}{p}}, \sqrt[p]{\frac{k}{p}}]$$

(L91)

$$y = \sqrt{p|x| - q} \rightarrow p|x| - q \geq 0 \rightarrow p|x| \geq q \rightarrow |x| \geq \frac{q}{p} \begin{cases} x \geq \frac{q}{p} \\ x \leq -\frac{q}{p} \end{cases} \\ \rightarrow D_f = (-\infty, -\frac{q}{p}] \cup [\frac{q}{p}, +\infty)$$

(L90)

$$L91) y = \sqrt{\frac{|x|+1}{|x|-p}} \rightarrow |x|-p \neq 0 \rightarrow |x| \neq p \rightarrow x \neq \pm p \rightarrow D_f = \mathbb{R} - \{\pm p\}$$

$$L90) y = \sqrt{\frac{\sqrt{x}+1}{\sqrt{x}-p}} \rightarrow \begin{matrix} x \geq 0 \\ \sqrt{x}-p \neq 0 \end{matrix} \rightarrow \sqrt{x} \neq p \rightarrow x \neq p^2 \rightarrow D_f = [0, +\infty) - \{p^2\}$$

$$L91) y = \frac{\sin x}{p \cos x - 1} \rightarrow p \cos x - 1 \neq 0 \rightarrow p \cos x \neq 1 \rightarrow \cos x \neq \frac{1}{p} \\ D_f = \mathbb{R} - \{k\pi \pm \frac{\pi}{p}\}$$

$$L90) y = \frac{\cos x + 1}{p \sin x + 1} \rightarrow p \sin x + 1 \neq 0 \rightarrow p \sin x \neq -1 \rightarrow \sin x \neq -\frac{1}{p} \\ D_f = \mathbb{R} - \{k\pi + \frac{\pi}{p}, k\pi - \frac{\pi}{p}\}$$

$$L92) y = \frac{\tan x + p}{\cot x - 1} \rightarrow \begin{matrix} \cos x \neq 0 \\ \sin x \neq 0 \end{matrix} \rightarrow \cot x - 1 \neq 0 \rightarrow \cot x \neq 1 \\ D_f = \mathbb{R} - \{k\pi + \frac{\pi}{p}, k\pi + \frac{\pi}{p}\}$$

$$L93) y = \frac{\sin^p x + 1}{p \sin^p x - p} \rightarrow \begin{matrix} p \sin^p x - p \neq 0 \\ p \sin^p x \neq p \end{matrix} \rightarrow \sin^p x \neq \frac{p}{p} \rightarrow \sin x \neq \pm \sqrt[p]{\frac{p}{p}} \\ \rightarrow D_f = \mathbb{R} - \{k\pi + \frac{\pi}{p}, k\pi + \frac{\pi}{p}\}$$

$$y = \frac{1}{\sqrt{p|x-p| - \frac{1}{p}}} \rightarrow p|x-p| - \frac{1}{p} > 0 \rightarrow p|x-p| > \frac{1}{p} \rightarrow |x-p| > \frac{1}{p^2} \xrightarrow{①} |x| > \frac{q}{p} \\ \xrightarrow{②} x - p < -\frac{1}{p^2} \rightarrow x < \frac{p}{p^2}$$

$$D_f = (-\infty, \frac{p}{p^2}) \cup (\frac{q}{p}, +\infty)$$

$$L91) y = \sqrt{k - p|x|} \rightarrow k - p|x| \geq 0 \rightarrow p|x| \leq k \rightarrow |x| \leq \frac{k}{p} \rightarrow x \leq \frac{k}{p} \\ -\frac{k}{p} \leq x \\ D_f \rightarrow [-\frac{k}{p}, \frac{k}{p}]$$

$$L90) y = \sqrt{\frac{|x|}{|x|+1}} \rightarrow \frac{0}{+ \infty +} \rightarrow D_f = \mathbb{R} - \{0\}$$